Demo: Ripping a Pop Can in Half

Introduction:

Wow your science students as you rip in half an aluminum pop can with your bare hands! (Superhuman strength not required) This demo is a fun way to illustrate chemical change and is a good demo that can be used as a minds on before a lesson on single displacement reaction.

Related Ministry Expectation

Grade 10 Academic Science

C2.3 investigate simple chemical reactions, including synthesis, decomposition, and displacement reactions, and represent them using a variety of formats

C3.5 describe, on the basis of observation, the reactants in and products of a variety of chemical

reactions, including synthesis, decomposition, and displacement reactions

Grade 10 Applied Science

C2.3 conduct and observe inquiries related to simple chemical reactions, including synthesis, decomposition, and displacement reactions, and represent them using a variety of formats

Instructions:

1. Take off the tab from an empty aluminum pop can and with a sharp object scratch a circle around the inside of the pop can near the middle. (This is to remove the protective plastic coating inside the pop can)
2. Pour in just enough 0.5M solution of copper (II) chloride (CuCl2) into the can so that the scratch mark is covered by the solution and wait for a few minutes for the reaction to occur.
3. Pour out the copper (II) chloride solution and rinse the can with water.
4. Wow your students by ripping the pop can in half with your hands effortlessly.

Theory:

The copper (II) chloride solution undergoes a single displacement reaction with the aluminum in the pop can as follows:

3CuCl2 (aq) + 2Al (s) → 3AlCl3 (aq) + 3Cu (s)

After the reaction when all of the exposed aluminum have reacted, the can is held together by the outside paint, making it easy to rip apart.

Safety Considerations: